

**WHAT IS CLAIMED IS:**

1  
2           1. A milling cutter, comprising a cutter body, a cutter holder secured  
3   on one end of the cutter body, a cutting insert secured on the cutter holder, and  
4   a locking screw extended through the cutter holder and the cutting insert to  
5   combine the cutter holder and the cutting insert, wherein:

6           the cutter holder has an inside formed with a receiving recess, the  
7   receiving recess of the cutter holder has a first side formed with an elastic  
8   clamp and a second side formed with a fixing seat, the elastic clamp of the  
9   cutter holder has a first end formed with an elongated slit, a mediate portion  
10   formed with an elongated arcuate protruding clamping jaw, and a second end  
11   formed with a depression formed with a clamping face; and

12           the cutting insert is mounted in the receiving recess of the cutter  
13   holder and has a first end formed with an elongated arcuate fixing groove  
14   mounted on the clamping jaw of the elastic clamp and a second end urged by  
15   the clamping face of the elastic clamp.

16           2. The milling cutter in accordance with claim 1, wherein the  
17   elongated slit communicates with the receiving recess of the cutter holder so  
18   that the elastic clamp of the cutter holder has an elastic deformation effect.

19           3. The milling cutter in accordance with claim 1, wherein the elastic  
20   clamp of the cutter holder has an inside formed with a countersunk bore, the  
21   fixing seat of the cutter holder has an inside formed with a screw bore, and the  
22   cutter holder is formed with a support hole communicating with the

1 countersunk bore and the screw bore, the cutting insert has a mediate portion  
2 formed with a through hole, and the locking screw includes a shank extended  
3 through the countersunk bore of the elastic clamp, the support hole of the cutter  
4 holder, the through hole of the cutting insert and the screw bore of the fixing  
5 seat, a head formed on a first end of the shank and fixed in the countersunk  
6 bore of the elastic clamp, and an outer thread formed on a second end of the  
7 shank and screwed into the screw bore of the fixing seat.

8 4. The milling cutter in accordance with claim 3, wherein the support  
9 hole of the cutter holder is extended to the elastic clamp and the fixing seat.

10 5. The milling cutter in accordance with claim 3, wherein the head of  
11 the locking screw is worked by a grinding process to have an exact size, and a  
12 small tolerance of about 0.01mm is defined between the head of the locking  
13 screw and the countersunk bore of the elastic clamp.

14 6. The milling cutter in accordance with claim 3, wherein the shank  
15 of the locking screw is worked by a grinding process to have an exact size, and  
16 a small tolerance of about 0.01mm is defined between the shank of the locking  
17 screw and the support hole of the cutter holder.

18 7. The milling cutter in accordance with claim 3, wherein a small  
19 tolerance of about 0.01mm is defined between the shank of the locking screw  
20 and the through hole of the cutting insert.

1           8. The milling cutter in accordance with claim 1, wherein a clearance  
2 is defined between the receiving recess of the cutter holder and the first end of  
3 the cutting insert.

4           9. The milling cutter in accordance with claim 1, wherein the  
5 clamping jaw of the elastic clamp is extended in a direction vertical to an axial  
6 direction of the receiving recess of the cutter holder.

7           10. The milling cutter in accordance with claim 1, wherein the fixing  
8 groove of the cutting insert is extended in a direction the same as that of the  
9 clamping jaw of the elastic clamp.

10          11. The milling cutter in accordance with claim 1, wherein the  
11 cutting insert is sideward inserted into the receiving recess of the cutter holder,  
12 and the clamping jaw of the elastic clamp slides into the fixing groove of the  
13 cutting insert.